



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

Journal of the Society of Arts.

FRIDAY, JULY 18, 1856.

BRUSSELS CONGRESS.

The Council have requested their Chairman, Col. Sykes, F.R.S., Mr. Thomas Twining, jun., Vice-President, and Mr. Thomas Winkworth, to represent the Society at the Conferences to be held at Brussels in September next, when questions concerning the manufacturing and commercial relations of countries with each other, and the welfare of the working classes, will be discussed.

AGRICULTURAL STATISTICS.

By THOMAS DAWSON.

In the report from the select committee of the House of Lords, appointed to inquire into the best mode of obtaining accurate agricultural statistics from all parts of the United Kingdom, at page 32, the following question is put to Sir John Walsham (163):—"In considering the question, is it your opinion there would be any other mode of collecting agricultural statistics which would be more satisfactory or agreeable to the farmers than through the intervention of the Poor-law Guardians?"

I beg leave to submit, in answer to that question, the following outline of a proposed plan for collecting agricultural statistics:—

The Ordnance map of the whole of England is now published at the uniform price of 2s. per sheet, I believe, and 6d. per quarter-sheet. This (1-inch) map, I think, may be made use of in this important work to great advantage, in the following manner:—If the sheet, or sheets, and quarter-sheets, comprising a county, were divided, and cut into sections of about six or eight inches square, and made to form the leaves of a book, containing a sufficient number of pages ruled and arranged similarly to Schedule D of the above-mentioned Report, the part of the map thus attached to the book would serve as a field sketch, or working map, on which all the different cultivations could be minutely sketched, and contain small reference numbers, &c., referring to the columns, sketching, valuations, &c., on the pages of the book. From this book and sketch, I believe, all the information really required may be obtained (even the enumeration of the stock), without troubling the farmer in any way, or asking him a question, or employing the complicated machinery of boards of guardians, enumerators, classifiers, clerks, &c.

This method might be considered as a kind of rough survey and valuation of the whole country, in an agricultural point of view; and if the correct data—that of the Ordnance map—is taken into consideration, I think it would be admitted that results sufficiently accurate for all practical purposes may be obtained. In estimating and computing the quantities from such a small map, any individual number would necessarily be incorrect; but I think the errors would constantly keep neutralising themselves, or, in other words, the quantity gained in the wheat would be lost in the barley, &c.; and, with the many facilities and appliances that the class of men to whom the work should be entrusted have at their command, the results on the whole would be quite as reliable as the returns of the farmers themselves.

In certain districts, where the old-fashioned system of farming is still adhered to—where the fields are very small, and the arable and pasture very much mixed—a tracing of the tithe commutation map of the parish

would be required, in which case the only field work would be to view the land, and insert in each number of the map, W, B, O (wheat, barley, oats, &c.); but generally, and in all the best cultivated districts, the Ordnance map would answer every purpose.

An active and practical surveyor and valuer would be able to perambulate several square miles per day; and by devoting the whole of his time and energies, and having the requisite assistance for the three or four months of May, June, July, &c., he would be able to make a rapid perambulation over the whole of the county, which on an average would contain about 1,200 square miles.

If this plan is considered a practical one, I would suggest that the surveyor should prepare from his field sketch a fair sheet or sheets, showing the entire county, distinguishing the arable, pasture, meadow, &c., by colours; and it will not be considered that the arable and pasture, &c., are mixed so confusedly as not to be distinguished by appropriate colours, even on so small a scale. It would be so to some extent, where the fields are very small; but, generally speaking meadows and pastures, to the extent of some hundreds of acres, lie together; and several arable fields, in the same manner, are generally found together.

This map might be prepared to accompany the returns, if time allowed; if not, it might be prepared, and sent up afterwards for inspection; and this sheet would afford most excellent data for the calculations of the following years, for I believe, if this mode could be carried out, it would only be required triennially, or perhaps every fifth year.

If the returns thus obtained should prove a sufficient basis for those of the two or four following years, the only thing required from the statistical county surveyor would be the working out of the calculations, and a new map, showing the state of the county as affected by the following crop, which would be done for about one-third or one-fourth of the first year's expense.

With regard to the valuation or estimation of the amount of produce per acre, perhaps the safest and most simple plan would be for the statistical surveyor (who would be a practical man, well known, and resident in the county) to communicate with the clerk of the Board of Guardians of every union in the county, as they would be able to obtain a very reliable estimate from the guardians, who are generally practical farmers; and this information, obtained from the actual yield, and from every union in the county, would give a tolerably correct average yield of the whole county.

And I beg further to suggest that this would be an efficient and easily-worked mode of securing the returns of stock in connection with the before-mentioned plan of obtaining the returns of produce. Every guardian being a practical farmer, residing in the parish, each one would be able to furnish an approximate estimate of the whole of the stock in the parish, his own inclusive. This will not appear impracticable, when it is borne in mind that in many parishes there are not more than half a dozen farmers, and in some instances only two. In some places the guardian would probably be a man not having that thorough knowledge of his parish; but he would always be able to avail himself of the services of such a man, who, either from acquaintance with parish business, or "long standing," &c., would be able to furnish the required information. In some instances, also, where the parish is very large, it would be rather a laborious task for the guardian; but, generally, I think it would be undertaken willingly and gratuitously.

The schedules containing the returns of stock would be left with the clerk of the Board of Guardians, and forwarded by him to the surveyor appointed to obtain the statistics of the county, and thereby avoid the necessity of making application to every farmer in the county.

ADVANTAGES OF THE BEFORE-DESCRIBED PLAN.

1st. Popular with the farmers. 2nd. Simple and

economical*, because only required triennially, or every fifth year. 3rd. The map would afford such an excellent test of the accuracy of the compilation. 4th. New features of interest and importance may be engrafted on it if the map is used, *i.e.*, drainage, reclamation of wastes, and the application of the sewage of towns to those districts, &c. It would also afford the data required for the "soil map" required in the geological survey spoken of by Col. James. 5th. The map would be a tangible record of the produce of the country annually, and an object of interest and importance, showing the state of the whole country in an agricultural point of view; it would do so if only taken once in ten years. 6th. There would be a uniformity in the whole of the proceedings if the map were used.

OBJECTIONS TO THE PLAN.

1st. It is questionable whether the whole of the green crops could be returned. 2nd. Not able to take the returns of stock at the same time. 3rd. Apparent inaccuracy, on account of the small scale of the map. But I think I can prove that, in the whole, the quantities would be quite as correct as those given by the farmers. A per-centage for fences, brooks, &c., would require to be deducted.

By another mode, the services of the relieving officers as enumerators may be dispensed with altogether, thereby effecting a saving (according to one of the estimates) of £16,000.

The Post Office messengers are an organised staff. It is also a permanent and thoroughly well-conducted establishment everywhere; and its machinery is perhaps more perfect than any that could be organised.

If one competent man in each county could have access to the rate-books, or be supplied with a list of the occupiers in every parish (in which there would be no great difficulty), he would then only have to transmit a schedule, and a concise instructional circular, enclosed in another envelope, to every occupier, through the post-office, which said envelope, containing the schedule properly filled up with the returns of both produce and stock, would be returned to the inspector or county surveyor, having his address thereon for that purpose.

In the majority of cases, I believe, the more intelligent class of farmers are not opposed to the measure; and those who may not understand, or are averse to it, at present, would not fail to attend to the filling up of the schedule, and returning the same to the inspector, if it (the envelope) had the usual "On Her Majesty's service."

This would be, if the plan is considered practicable, much less expensive than any other mode that has been suggested, as, I believe, all the circulars, &c., both to the occupiers and when returned to the inspector, might go post-free.

And perhaps by this method a more accurate return of the corn averages might be obtained from the farmers themselves.

ON THE WINES OF HUNGARY.

(Communicated by Count Samuel Szentagh, through Benjamin Oliveira, M.P.)

The first vines were introduced into Hungary during the third century, by the Roman Emperor Probus.

The vineyards in Hungary cover 2,099,754 acres of land, most of the lower ridges, as well as large tracts of

the plains, producing yearly not less than 950,000,000 of gallons. For want of foreign markets, the whole of this enormous supply, excepting a small export of wines of Tokay to Prussia and Poland, is consumed by the inhabitants or is kept accumulated in cellars.

One-third of the wine produce is white, amongst which the fine nectar, of a clear yellowish green hue and sweet aromatic flavour, called Tokay, takes precedence. This wine is grown on a volcanic range of hills in the county of Zemplin, by the borough of Terezal, Arad, Talga, Tolesna, Erdő-béngé, Tokay, and several others, the whole of this district being known under the denomination of Heggallga, and extending over an area of 25 square miles, the principal place in which is Tokay, and hence, the more specific name to that wine. The yearly average produce amounts to 206,000 gallons. There are five classes of Tokay wine: those of first and second are sweet, so-called liqueur wines, which we know in England under the name of Imperial and Prince's Tokay; the third and fourth classes are what the French call "Vins molleux;" the fifth class belongs to the category of dry wines.

As to their prices they may be set down as follows:—

1st class, £2 per gallon; 2nd class, £1 per gallon; 3rd class, 10s. per gallon; 4th class, 8s. per gallon; 5th class, 6s. per gallon.

With regard to strength and price, the nearest to the Tokay are the white wines of Ordenburgh and Rust. These are very strong bodied, and of a dark yellow colour. As to their flavour they are inferior only to Tokay. Amongst these, liqueur wines are also to be had. Their prices are 8s. per gallon. The dry wines fetch 3s. per gallon.

The next in rank are the wines of Sixmun, Carlowitz, and of Moszlavina, in Croatia. These are both white and red, and, though very strong, their flavour resembles much that of French Roussillon. The price is from 2s. to 4s. per gallon.

Of dry wines, the most excellent are those of Somlzs and Neszmily. Their colour is of a beautifully golden hue, similar to the best Sauterne, on account of their exquisite and powerful flavour. Their prices are from 1s. to 2s. per gallon.

Equally distinguished white wines are those of Bahator, Ermellek, Arazgarast, Szereduze, and Badasowy. These are like Rhine wines of prime quality, and possess a bright colour and strong flavour. Their prices vary from 1s. to 2s. per gallon.

Of red wines, comprising two-thirds of the produce, there are many excellent varieties, which, in strength, fire, and flavour, may easily compete with the best Burgundy, one particularly, that of Ménes, according to the accounts of several French travellers, amongst whom Count Odart, who inspected the Hungarian wines at the order of the French Government—surpasses even the most celebrated French red wines.

The first rank amongst the red wines takes that of Ménes, in the county of Arad: the yearly produce amounting to 30,000 gallons. The wines are classed into so-called liqueur and dry wines. Their prices being of the former from 12s. to 16s. per gallon, and the latter, from 2s. to 4s. per gallon.

Next come those grown on the hills of Eslaw, Visonta, Buda, Szegszard, Villany, Eceseg, Carlowitz, and Moszlavina. They generally fetch from 1s. to 4s. per gallon.

Besides the above mentioned wines, there are numerous other places where excellent kinds of red as well as white wines are grown, the price of which, according to their quality, varies from 1s. to 6s. per gallon.

* I have not given an estimate in detail of the expense of obtaining the returns by this mode, but I find I can perambulate nearly a square mile per hour. An average sized county of about 1,200 square miles would be done for (including everything) about £420, making, for the whole of England, £16,800. The mode of an inspector for each county to obtain them through the post office, would be done for about half.

FIBRE OF THE "DHENROOS" OF BENGAL. (*Hibiscus Esculentus*.)

Some time since, some samples of paper, made from the fibre of the "Dhenroos" of Bengal (*Hibiscus Esculentus*), together with a specimen of the fibre itself, were forwarded to the Society by Mr. A. H. Blechynden, the Secretary of the Agricultural and Horticultural Society of India, with a view to obtaining a report thereon. These specimens had been submitted to Dr. R. Riddell, Superintending Surgeon at Bolaram, extracts from whose letters, given below, were sent as affording full information:—

Extract of a Letter from Dr. R. Riddell, dated Bolaram, 23rd September, 1854, respecting the fibre of the Hibiscus esculentus.

"This fibre, though coarser than the plantain, is much whiter, and, I conceive, might be made particularly available for the manufacture of paper, if not for other purposes; and, as it is of quick growth, arriving at perfection in from 13 to 14 weeks in the rains, and about the same time after three crops could be raised during the year; and it strikes me the plant would grow during the summer months in England, and ripen in the autumn. The natives are fond of the vegetable it bears, and readily cultivate it; and the stem would only be required after the fruit had been removed. The produce of fibre from one plant was an ounce and quarter, whilst the plantain leaf only gave three-quarters of an ounce. The mode of preparing the fibre was pretty similar to the plantain; the stem and branches being cleared of the leaves and shoots with a sharp knife, a slit was made along the stalk for the purpose of dividing the bark easier; it was then laid on the block and beaten, when the bark immediately separated from the wood part and was stripped off, and the fibre cleaned like the plantain, only it appeared to be much quicker done, and so was the silky fibre from the Muddar (*Asclepias gigantea*); it was beaten out almost at once a pure white."

Extract of a Letter from Dr. R. Riddell, dated Bolaram, 13th February, 1855.

"In a former communication on the subject of Indian fibres I mentioned, when I sent you a few samples, that I thought paper might be made from the *Hibiscus esculentus*, known generally amongst the natives as an "Ambarn." Since then, I have found a manufacturer of coarse paper, who resides in the Bazaar, and have had a trial given to the hemp of the "Bayndie," and which I since learn is to be bought in many parts of the Deccan, from 12 to 14 annas the maund (equal to 1s. 6d. to 1s. 9d. for 80lbs.). For 12 seers (24lbs.) here I had to pay one rupee eight annas (three shillings). I enclose you a sample of the paper made from it, and, although coarse, I am led to think the fibre, if prepared with a little more care, and bleached, would produce paper of the best quality. I have fibre prepared under my own direction nearly white, but which I did not like venturing with the paper manufacturer until I had seen the results from the bazaar article. The natives grow the bayndie plant very generally, using the capsule when green as a vegetable, and never pull it up until it has done bearing, when it is pulled, and the leaves, if remaining, stripped off; it is then soaked in water for a time sufficient to loosen the bark from the end, beaten out and dried, the root part of the stem being allowed to remain, and this of course increases its weight to the purchaser. When I gave the hemp to be made into paper I desired the root ends to be cut off, thereby decreasing by so much the quantity of material for the paper, although the man remarked it would make the strongest. My desire was to have as fine a paper as he with his very limited means could produce (merely a wooden beater, a bamboo sieve or frame, and a small chunam lined tank or reservoir). He brought me first a quire as a specimen; and after one ream, size 20 inches by 18, weight 18 pounds, to which if added the previous quire, and the ends of the stalks not used, it shows little loss of material in the making of the paper from twelve seers of the hemp. My object being to ascertain the capability of converting the bayndie fibre into paper, I allowed the man, as an inducement to do his best, to make his own charge, and his charge was three and a half rupees (seven shillings). From the strength and thickness of the paper, there can be no doubt that with the aid of machinery and the fibre better prepared, three reams of good paper might be made out of the same quantity."

Extract of a Letter from Dr. R. Riddell, dated Bolaram, 31st March, 1855.

"I enclose a small specimen of the fibre of *Hibiscus esculentus*, as it is very different from the bayndie hemp as prepared by the natives, particularly in its appearance. Besides, more is procured from one plant by my process than by the usual method of dressing it. The natives soak their bark for nearly two months, and then beat it out; whereas mine is not soaked for more than from 12 to 15 days. The bark when first peeled off the stem is cut in lengths of from six to eight inches, and then soaked in a vessel of water, being well stirred and turned about as the pulp around the fibre begins to soften, changing the water two or three times. It is then taken out and beaten with a round mallet on a block, dashing it with water during this process, after which it is washed and dried. I found the fresh green bark of 40 stems to weigh twelve pounds, and 40 pounds yielded three of fibre, which gives a little more than an ounce to a stem; the latter quantity may be taken as the average. As far as I can judge, the fibre, as prepared by the natives, is in the proportion of about six ounces to ten stems; therefore, if I am correct, my method of preparing the fibre, though a little more tedious, is compensated by the large increase in quantity, and apparently of a better quality for the manufacturing of paper."

The materials have been submitted to Mr. Stones, who writes as follows:—

"Maldstone-wharf, Queenhithe, London,
30th June, 1856.

"DEAR SIR,—Having carefully examined the fibre of the *Hibiscus* and the paper made therefrom, upon which you requested my opinion, I have much pleasure in offering the following observations:—

• "1st. The fibre is strong, and suitable for the purpose of making paper; although from the smallness of the quantity supplied it is almost impossible to name its market value, but at the price quoted, say 2s. 6d. per cwt. in India, and 7s. per cwt. freight and charges, I have no doubt of its meeting with a ready sale in the English market.

"2nd. The paper sent from India is estimated to be of the value of 44s. per cwt. in its present state, which, deducting 18s. 6d. per cwt. import duty, would leave 25s. 6d. per cwt. as the intrinsic worth of the article in bond.

"If the paper could be supplied of the even texture and surface of the enclosed specimen, its value would be raised to 54s. per cwt.

"The points, therefore, to be determined by the Indian merchant are:—

"1. Whether it would be advisable to ship the fibre with a probability of its realising the price intimated.

"2. Would it be profitable to deliver the paper in London at 25s. 6d. per cwt. in its present condition?

"3. Would it be preferable to attempt to improve the manufacture to such a point as to make the article worth 54s. in London, duty paid?

"Any further information that may be desired I shall be happy to afford. I am, &c.,

"W. STONES."

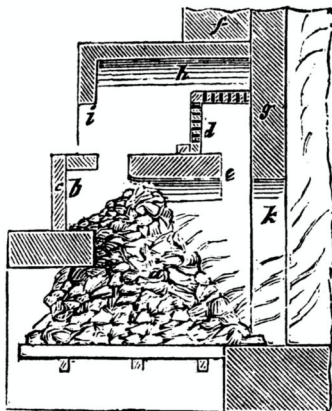
SMOKE NUISANCE.

The following invention has been patented by Mr. Doulton, for getting rid of the smoke from pottery kilns:

Fig. 1 is a section of a fire-place or furnace of a kiln where fire bars are used, and fig. 2 is a section where no fire bars are employed. *a* is the fire-place or furnace, into which the fuel is placed through the opening *b*, to facilitate which the tile or slab *c* is taken away, and then replaced; *d, d*, are perforated fire tiles over an opening *e*, at the upper part of the fire-place or furnace; *f* is part of the outer wall of the kiln; *g* is part of the lining of the kiln; *h* is a chamber above the perforated fire tiles, which can be partially closed by introducing a tile or brick, or otherwise, at the opening *i*, to reduce the quantity of air passing into the chamber *h*, (and consequently to the fire), when the coal has become well ignited. There may be further perforated tiles used above those shown,

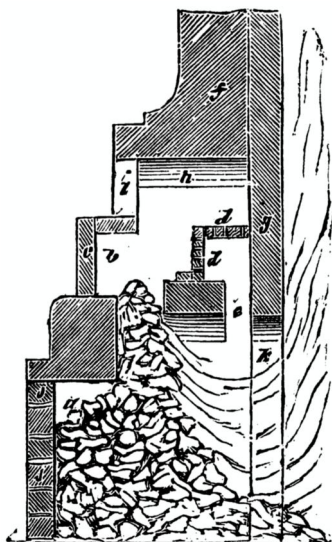
to partially heat the air before it comes to them, where no fire-bars are used, fig. 2. *j, j,* are bricks piled, as

Fig. 1.



heretofore, loosely at the lower part of the furnace or fire-place, as shown, between which air can pass to support combustion, as well as down through the fuel from the chamber *h*. By these arrangements the perforated tiles *d, d,* will become highly heated, and the atmospheric air will become heated in passing from the chamber *h*, downwards through the perforated tiles into the upper part of the furnace or fire-place, and will enter above the fuel therein, and thence pass into the

Fig. 2.



kiln through the opening *k*, where it will meet with the products passing off from the fuel, and become ignited with them as they enter the kiln.

COPPER, ZINC, TIN, AND LEAD.

A return has lately been made to the House of Commons, giving accounts "of the exports and imports in the United Kingdom of copper, zinc, zinc ore, and tin, for the year ending with the 5th day of January, 1856;" "and of the exports and imports of lead and lead ore for three years ending with the 5th day of

January, 1856." By this return it appears that there have been imported as follows:—

COPPER.—Ore, 58,089 tons; regulus, 8,510 tons; unwrought, in bricks and pigs, rose copper, and all cast copper, 3,624 tons; old, fit only for re-manufacture, including all yellow metal sheathing, 1,168 tons; part wrought, viz., bars, rods, or ingots, hammered or raised, 4,419 tons; plates and coin, 269 tons; copper manufactures, and copper plates engraved, 513 tons. The largest ports of import are Swansea and Liverpool, there being imported into Swansea 35,761 tons of ore; and into Liverpool, 17,141 tons. Spain, South Australia, Cuba, the United States of America, Chili, and Bolivia, are the largest sources for the supply of ore.

The total export of British copper was 16,658 tons, consisting mainly of sheets, nails, &c., including mixed or yellow metal. The export of foreign copper was extremely trifling. The exports of British copper during the year were principally to France, the British territories in the East Indies, and the United States of America. The total export of British copper from London was 6,898 tons. The total export of British copper from Liverpool, exclusive of ore, was 5461 tons.

The duty on copper ore having been repealed on the 4th of June, 1853, the quantities admitted to consumption during the period comprehended in the return are identical with the quantities imported, as shown.

TIN.—The total import of tin into the United Kingdom in the year ended 31st December, 1855, was 1,612 tons, principally from Singapore, China, East Indies, and Holland; while the total export of British tin during the same period was 1,347 tons, and of foreign tin 280 tons. The main export of British tin appears to have been to Turkey and France.

ZINC.—The total import of zinc and zinc ore into the United Kingdom for the year ended 31st December, 1855, was, of zinc or spelter, 17,852 tons; and of oxide of zinc, 236 tons. The main supply was imported from Prussia, the Hanseatic Towns, and Belgium. Of zinc and zinc ore exported from the United Kingdom the total amount was, zinc or spelter, British, 2,516 tons; foreign, 2,636 tons; the largest export being to the East Indies.

LEAD.—The quantities of lead and lead ore imported into the United Kingdom in the three years ended 31st December, 1855, were:—

	Lead, Pig and Sheet.		Lead Ore.	
	TONS.		TONS.	
1853	17,564	733		
1854	11,858	1,156		
1855	7,246	742		

Newcastle, London, and Liverpool are the ports to which the main supply is brought, Spain sending us upwards of nine-tenths of the whole quantity imported.

The exports of lead and lead ore during the same periods were:—

BRITISH LEAD AND LEAD ORE.						FOREIGN LEAD.		
	Lead Ore.	Pig and Rolled Lead.	Shot.	Litharge.	Red Lead.	White Lead.	Lead Ore.	Pig and Sheet Lead.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Cwt.	Tons.
1853	488	14,935	1,307	316	1,025	1,528	2	1,438
1854	104	17,857	1,748	373	1,102	1,814	...	199
1855	564	20,466	1,681	230	1,781	3,008	...	97

In 1853, Russia took of us 2,818 tons of pig and rolled lead; France, 1,195 tons; and the United States of America, 5,794 tons. In 1854, our principal exports of pig and rolled lead were, to France 1,431 tons; China, 1,926 tons; Australia, 2,893 tons; and the United States of America, 5,558 tons. In 1854, France took 4,359 tons; China, 1,993 tons; Australia, 1,078 tons; and the United States of America, 9,246 tons.

Home Correspondence.

GUM GLUTEN.

SIR,—I do myself the honour of submitting, for the favour of your inspection, and that of such members of the Society of Arts as may be pleased to take an interest in the same, four specimens of a gum gluten, if such it is, recently collected and prepared by myself from some of the *Asclepiadæ* and other plants indigenous to the soil of Goruckpoor, in the Northern and other districts in the East Indies.

2.—I am not aware whether this gum has ever been submitted to the examination of competent talent in Europe or not. Should, however, any mistake have occurred in this respect, I can only offer my apologies for needlessly trespassing upon your time and attention.

3.—This preparation appears in many respects analogous to the genuine gutta-percha of Assam and Mergin, that is, so far as I have had an opportunity of comparing the two productions. It is, however, only very recently that I have seen the gutta-percha in the shape of fabricated articles, and never in its crude state as imported into England.

4.—Several years ago my attention was directed to the examination of the juices of various lactiferous plants of the Northern districts of the East Indies, and after many experiments I had tolerable success in finding an easy and certain process for the instantaneous separation of the gum gluten, as now submitted, from the crude liquids obtained from the plants, but until it may be determined whether the substance has any commercial value at all, it would be premature to enter much into detail, further than to mention that the produce and quality of the gum vary according to the season, some varieties thriving best in the hottest months, when the thermometer stands in the sun's rays at 135° to 140° F., as I have frequently witnessed.

5.—The composition of the juices of one variety of the *Asclepiadæ*, from which the gum gluten was separated, I find to be nearly as follows, in the month of September:—

White gum gluten.....	6.5 per cent.
Feculine matter	8.0 "
Crystallizable salts,*	} 5.5 "
dry extract	
Water	80.0 "

When carefully prepared, this gum gluten, when fresh, is of a pure milk white colour, with a satin-like texture. It hardened on exposure to the air, still retaining for some time its original purity of colour. On immersion in hot water it rapidly softened, and was at once restored to its plastic condition. It might then be extended or threaded out to any length at pleasure, or kneaded like dough, only very much stiffer. Whilst yet warm, it received the impression of a seal, retaining it when cold. It readily effaced the writing of a lead pencil on paper, but it was soiled thereby. These qualities were by no means impaired after long keeping, only the external surface lost its whiteness, and becoming a dark grey, preserved, in some degree, the internal part from further change, which still retained the satin-like texture observed the first time it was prepared. The gum gluten was shown to many parties at the time in India, long before gutta-percha was heard of, but it was not then considered (except as a mere matter of curiosity) of sufficient importance to encourage a continuation of the research.

6.—Within the last two or three years, however, my at-

* The nature of these salts was not determined; they were decidedly of astringent taste. Some peculiar acid was present, insoluble in nitric acid, and in a chemical point of view worthy of attention. The liquid portion was quite limpid, with an odour more resembling the sweet wort of domestic breweries than anything else with which it could be compared.

tention was again directed to the subject, chiefly with a view to its possible applicability to photographic purposes. Accordingly, in December, 1853, I had some of the juice collected, but found it exuded rather scantily in the cold season. Being then on circuit duties, several days elapsed before I could operate upon it. The gum, in consequence, became deteriorated, and of a darker colour than it otherwise would have been. It was subjected, moreover, to some experiments which very likely injured it. I had not an opportunity of repeating this experiment at the time, and therefore submit it, just as it is, as a specimen of the gum, modified probably by injudicious experiment, not likely to be repeated in future researches. I have marked this specimen No. 4.

7.—Early in the month of February following, I had about eight pounds or so of the crude sap collected, but from other varieties of lactiferous plants. This yielded nearly 4½ ounces of the dry gum (about 3.7 per cent.). I have numbered the specimen as No. 2.

8.—Later in the season, about the beginning of March, from the same quantity of crude sap, 5½ ounces of the dry gum were prepared (about 4.3 per cent.), which I have marked as No. 1.

9.—In April of the same year, 10½ ounces of the dry gum were separated from about twenty pounds of the crude juice (or about 3.3 per cent. only). This specimen I have called No. 3.

10.—These experiments were made under much interruption, but the amount of produce rather decreasing as the weather became hotter, scarcely seems to corroborate the report of the natives of India as alluded to in the latter part of the 4th paragraph. For the sake of convenience, however, I beg to subjoin the average results in one view:—

Paragraph.	Specimen.	Gathered.	Juice.	Gum obtained.	Per Cent.
7	No. 2	Feb.	8lbs.	4½ ozs.	= 3.71
8	No. 1	March	8lbs.	5½ ozs.	= 4.3
9	No. 3	April	20lbs.	10½ ozs.	= 3.28
4		Rainy season (Sept.)			= 6.5

But experiments of a more systematic nature are required before the productiveness, or otherwise, of these plants, at particular seasons, can be determined.

11.—Since landing these specimens in England last month, I find they have a degree of brittleness which I did not so particularly notice in India. Difference of climate may be one cause; however, the small round specimen sent with the others (as No. 5) has been boiled for about two hours in a strong solution of caustic potash, and, to me, appears less brittle and of a harder nature than the others. It occurs to me, however, from some trials made as under, that a very slight admixture of oleaginous matter, or of turpentine, would remedy this defect, but I have not enjoyed the opportunity of experimenting on the gum to the extent I could have wished, owing chiefly to the difficulty in collecting chemical re-agents in my remote part of India in a fresh state at the time required. The following, however, may in some degree be useful to record:—

1. COLD WATER.

When the gum gluten is freshly prepared, and flattened out into thin discs of 6 or 8 inches in diameter, and about one-tenth of an inch in thickness, it will float on water, if gently placed on the surface. When both sides are wetted, it gradually sinks, but when once thoroughly dried, it is not much, if at all, affected by immersion in cold water. Whilst under preparation, it obstinately retains, like most vegetable glutens, a large proportion of water—then it is very liable to decompose if kept too long in a wet state. It also acquires a peculiar odour, somewhat, but unpleasantly, resembling cheese; on this account it is very necessary that the gum should be separated from the freshly collected sap, and the preparation concluded with the least delay.

2. HOT WATER.

Hot water softens the gum gluten; renders it plastic;

when thus softened, it may be kneaded or threaded out to any extent. It will then receive and retain the impression of a seal. As it cools, it again hardens, becoming more or less brittle. This operation may be repeated at pleasure without injuring the properties of the gum. In hot water it appears to be but a slow conductor of heat.

3. IMFLAMMABILITY, &c.

Heated at a candle it melts, and inflames like sealing wax, giving off a dense black smoke, and thick heavy drops of the melted gum fall to the ground.

4. TURPENTINE.

Oil of turpentine completely dissolves the gum. One fluid ounce of the oil will dissolve about thirty grains or so of the gum, and in this state of solution it makes an excellent cement for uniting broken glass, china ware, or the like.

5. VEGETABLE OILS.

Cocoa nut oil dissolves it more or less, as it will most vegetable glutens; the action varies with the temperature.

6. ÆTHER.

Cold æther partially dissolves the gum. The æther I had was rather old, but it took up about 30 per cent. of the gum.

7. SPIRITS OF WINE, &c.

These do not dissolve it. I had neither absolute alcohol nor chloroform at hand at the time I was making these experiments.

8. CAUSTIC ALKALIES

Have no apparent effect upon the gum-gluten. A portion was boiled for two hours in a strong solution of caustic potash, without dissolving the least portion, as the specimen was weighed both before and after the operation. See paragraph 11.

12.—The crude juice of some of these plants is often used by the natives of India as an external application in cases of cuts and bruises, which speedily heal when thus defended from the air; and the stems and stalks of some of them afford a fibrous matter which future investigation may turn to important account.

13.—In conclusion, I have to apologise for the meagre nature of this hurried statement, prepared since my arrival in England last month, and chiefly from memory, but I beg leave to add, that whenever perfectly convenient, I shall feel greatly obliged by the favour of an opinion on the gum-gluten, now, as I believe, submitted for the first time for examination in England.

I am, &c.,

GEORGE OSBORNE,

Hon. East India Company's Uncov. Service
(on leave of absence.)

22, Pelham-crescent, Brompton, July 8, 1856.

MR. HAWES' THEORY OF SAPONIFICATION.

8, Great Tower-street, 12th July, 1856.

SIR,—Mr. Anderson, in the Society's *Journal* of the 11th July, accuses me of the most perfect ignorance of the "*constitution of stearine*." This, if it will afford him any gratification, we will not contradict; but then I have given M. Chevreul's definition of the chemical elements of stearine, and, in juxtaposition, that of glycerine. Perhaps Mr. Anderson will defer to the authority of the French chemist upon that point. I have quoted only so much of M. Chevreul's work upon the *Corps Gras* as will enable all impartial readers to decide who has understood him best, and who has rendered him most justice.

I am not aware that I have in my paper given any theoretical or practical communications of *my own* upon the subject of saponification; but Mr. Anderson has stated, "that he is fully determined to examine the question, so as at once to set at rest the correctness or fallacy of Mr. Hawes' view of saponification." After this pledge, will Mr. Anderson desert this important

matter under the shield of my ignorance, instead of adhering to the standard of the sense of Mons. Chevreul, of which he is the voluntary champion?

Mr. Anderson cannot point out any passage in my remarks in which I have sustained, or even hinted, "*the identity of stearine and stearic acid*."

I am, &c.,

H. C. JENNINGS.

DECAY AND PRESERVATION OF STONE-WORK.

SIR,—At a meeting of the Royal Institute of Architects, on the 28th of November, 1853, the subject under discussion being the "Decay of stone-work, and the best means of preventing it," it was suggested by one of the members that the object of the Institute ought, first, to be directed to the causes of decay; and, having ascertained the disease, then to set about finding an efficient remedy. Upon perusal of this article in the *Builder* newspaper, I was induced for some months afterwards to examine more minutely into the causes of decay, having previously, during the last eleven years, turned my attention to the induration of soft and porous stones, and the best method of arresting the progress of decay in our ancient and modern structures where commenced, and preserving those intact where decay had not as yet made its appearance. Hence, my attention has been directed to the state of the various stone buildings in and about the metropolis, especially with a view of first discovering the cause of the premature decay. My experience, after a variety of tests and trials, leads me to the conclusion that alkaline efflorescence is the primary cause of the decay in stone-work; this efflorescence is the result of chemical agency, not the least of which will be found in the cement or mortar employed for "bedding" or jointing the work, as in all cases it may be observed that crystals are found commencing at the angles or joints of the work before the walls are thoroughly dry; and, in the first instance, the disintegration which follows proceeds from the alkaline matter contained in all cements and mortars now in general use. In many cases it is accelerated by the employment of sea or salt sand, which is too often used, as the damp developed on the internal walls of many of our buildings plainly testifies.

If pieces of Bath or Caen stone, an inch thick, be set with a layer of Roman cement between, and be exposed to the action of the air, it will be found, in the course of three or four years, that the cement will have so acted upon the stone as to render it capable of being crushed by pressure between the thumb and finger, in consequence of its decomposition by the chemical action of the cement. A proof of the destructive effect of salt upon stone-work may be observed in any seaport town. The stone buildings which are exposed to the sea-breezes show plainly this effect. In London and large manufacturing towns the various chemical matters combined with the air form other prolific sources of decay in stone-work. In certain localities, where the atmosphere is comparatively free from these influences, vegetation may be observed as accelerating the progress of decay, as instanced by the stone-work of Hampton-court Palace and the monumental work in the various cemeteries at a distance from the metropolis and large towns. Such are some of the various causes of decay in stone-work.

I have endeavoured to find a remedy, and I believe that I have succeeded. I employ a solution of one part, by weight, of sublimed sulphur, in eight parts of linseed oil, heated in a sand bath to a temperature of 278° Fahr., by which process the vegetable mucus of the oil is precipitated, and the watery particles evaporated, and their place supplied by the sulphur, which is readily taken up by the oil at the above temperature. The solution is applied with a common painter's brush to the sur-

face of the stone, until it will absorb no more. Sulphur is stated by ancient and modern chemists to be insoluble in water, and to suffer no change by exposure to air; and, further, it is known to be a decided foe to vegetation, and its use in bleaching is well known. For these reasons I have selected it as the basis of the indurating medium. The stone so treated becomes extremely hard, almost equal to granite, and, so far as I have been able to test its preserving qualities, a period of four years shows, not only that no decay has taken place, but time seems actually to increase its hardness. It is simple and inexpensive in its application.

I am, &c.,
J. B. DAINES.

5, Little Argyll-street.

Proceedings of Institutions.

LIMERICK.—On Friday, the 10th instant, his Excellency the Lord Lieutenant opened the Athenæum. Amongst those present were the following:—Lieutenant-Colonel Dickson, Alderman Joynt, Alderman Quinlivan, Dr. Evans, J. T. MacSheehy, T.C.; Alderman Watson, Francis Ward, T.C., J. T. Devitt, T.C., the Mayor of Waterford, Dr. Geary, J.P., Sergeant O'Brien, M.P., Francis Spaight, J.P., M. Kelly, T.C., Robert Rodgers, J.P., James Barry, J.P., Robert Keays, T.C., Robert M'Murry, W. O'Hara, T.C., J. J. Quinlan, F. J. O'Neill, Treasurer Limerick Corporation, the Mayor of Cork, Robert M'Mahon, T.C., John M'Donnell, T.C., Thomas Revington, Joseph Merrick, Joseph Fogarty, Robert Anglim, J. C. Patterson, T. M. Usborne, Alderman Tinsley, Thomas E. Carte, J. Barry, T.C., Thomas Boyse, J.P., M. Quin, T.C., Dr. Kane, R. Hunt, Sir Richard De Burgho, Bart, Sir Vere De Vere, Bart., William Phayer, T.C., John Singleton, Rev. Mr. Willis, Joseph Gabbett, Thomas Lake, James Barry, Stamp-office, Dr. J. Elmes, W. E. Elmes, W. E. Corbett, John Basset, W. Mason, Charleville; Rev. Mr. Hegg, Rev. Mr. Bourke, P.P. St. John's; Wm. Johnston, A. W. Harnett, Daniel Doyle, John Quin, Richard Wilson, George Byfield, David Fitzgerald, Rev. John Delmedge, Dr. Murphy, Alfred Allen, Richard Hannan, John Sidley, W. O. Gubbins, M. Dawson, T.C., Dr. White, Inspector of Lunatic Asylums, A. W. Maunsell, Z. M. Ledger, and Dr. Kavanagh. Precisely at one o'clock his Excellency entered the hall, accompanied by Lady Fanny Howard, Miss Howard, the Mayor, Major-General Sir J. C. Chatterton, Bart., and staff, the Earl of Dunraven, &c., when the National Anthem was struck up by the orchestra and chorus, numbering nearly one hundred performers. Alderman Joynt (the President of the Society) read the following Address to his lordship:—"We, the President, Council, and Members of the Limerick Athenæum, beg leave to offer our grateful acknowledgments for the distinguished honour of your Excellency's presence in this Hall to-day. At the moment of its dedication, it may not be inappropriate to recall the reasons which led to its erection, and the objects of its promoters. They knew our ancient and populous city was day by day being rendered more healthy; its public places enlarged; its docks opened to the shipping of the world; its railways securing rapid communication with the rest of the country. They saw the attention which was everywhere bestowed on public health, industry, and commerce; but it seemed to them also that an Institution was required as an aid to popular adult education, suitable for the delivery of literary and scientific lectures, for the promotion of art, and for the cultivation and practice of musical science. The 'suggestions for the establishment of the Athenæum' were no sooner published than many friends of knowledge came forward with voluntary and generous offer-

ings, and the sympathy expressed for the project encouraged its friends to persevere. They did persevere, and resolved to establish an institution, embracing reading and class rooms, a library, a museum, a laboratory, and a lecture-hall. These were to be made available for the local societies then in existence, or which might at any future time be established. Accordingly, the Limerick Literary and Scientific Society, the Harmonic Society, and the School of Art, are now in possession of the building. The Limerick Literary and Scientific Society was founded in 1847, for the purpose of improving its members in composition and the study of general literature. At first, few in numbers, it has gradually increased to over 400; it has extended its operations to the teaching of science by means of lectures, which, for the future, will be delivered here, and has furnished from its own ranks eloquent and useful public lecturers. Its members have decided to establish a Library, to which one of the earliest contributors was your Excellency. The Limerick Harmonic Society is now furnished with a concert room, where classical music can be heard by a large audience. The refining and elevating influence of the society has been acknowledged by all, and by none more than by the working classes. We hope next winter to see the efficiency of the society increased by the erection of an organ. The School of Art was revived in the Athenæum, and its success has outstripped expectation. But as the noble Earl, its President, will present an address to your Excellency, we only indicate its affiliation with our undertaking. A wish having been expressed by many agriculturists of the county and city that a farmers' club should be established here, a room has been set apart for that purpose, and the lecture hall will be thrown open to lectures on agricultural science. Our duty to the generous contributors to the building fund ends to-day; we undertook to expend the money entrusted to our care with whatever zeal and fidelity we could command, and in declaring the building open to the public, your Excellency relieves us from a pleasant though laborious duty. It now becomes the duty of the citizens to see that this building, which has been erected at no slight labour or expense, which shared the contributions of the affluent and the humble, of the lovers of learning and science, may be, by the united action of all, rendered useful to the student in art, to the sons and daughters of the mechanic, the shopkeeper, and the merchant, and may tend, though in a humble way, to spread before their minds those intellectual treasures which raise, refine, and temper the human intellect to its finest issues. We beg to congratulate your Excellency upon the improved state of primary instruction in this city. In all directions schools and institutions of the most admirable character can be found, and the advances made within the last twenty years in Ireland have equalled those of any European country within the same period. We advert to this topic with satisfaction, because we feel primary instruction is the true basis of national improvement in science, art, and literature, and its first advances may be traced to that time when Lord Morpeth was Secretary for Ireland. We believe that nothing contributes so much to the progress of mankind as literature. It endows the individual with power. It is the glory of nations. It is even now, after the lapse of 2,000 years, the glory of that city which gives a name to our institution,

'Turn ever to the land
Where, on the Ægean sea, a city stands,
Built nobly—pure the air and light the soil—
Athens the eye of Greece, mother of arts
And eloquence.'

We feel, to quote your Lordship's words at the Manchester Athenæum in 1846, 'That learning, in any community, will not prove a dangerous thing—that commerce, which has honoured and ennobled a community like this, is the natural ally of literature and art—that the tastes which may here be encouraged, the habits

which may here be fostered, are those which give a grace and glory to the lives of men.' We also recognise the force of the lessons taught by the Exhibitions of London, Dublin, and Paris, that to keep pace with the rival industries of Europe and America, the workmen of the empire must be taught the sciences which enter into their respective trades, and thus become educated as well as skilled mechanics. Animated by these convictions we have laboured. If this project be calculated to supply a great public want; if it have in itself ought to recommend it; if it be calculated to help on their march through life those whose early education was neglected, and whose position forbids the acquisition of expensive instruction; if it be regarded as a neutral ground, which political or religious discussions shall never violate, then we will feel abundantly rewarded for our efforts. These efforts were directed towards the promotion of that good cause—the cause of popular education and improvement, of which your Excellency has always been the tried and generous friend. We felt assured of your sympathy. We knew that your Excellency had filled the lecturer's chair, and graced the platform of kindred institutions in England, and we now beg to express our best wishes for your Excellency's happiness, and our gratitude that you have not overlooked our efforts in the contemplation of those material proofs of commercial prosperity and activity, which, during your visit, our native city has presented. Signed on behalf of the Council and Members. WILLIAM LANE JOYNT, President; RICHARD D. WILSON, WM. FITZGERALD, Secs."

To this address his Excellency replied as follows:—"GENTLEMEN,—I request the President, Council, and Members of the Limerick Athenæum to accept my sincere thanks for their most interesting and eloquent address. It has been most agreeable to me upon this occasion of my visiting the city of Limerick, after a long interval, to witness the manifest indications of improvement and enterprise by which I find myself on every side surrounded; but, if possible, it is still more gratifying to find that you have made due provision that the career of national progress should be accompanied and adorned by the yet higher objects of mental and intellectual culture. You have adverted to the still fresh fame of that ancient Athens, upon whose undying forms of natural and architectural beauty it has been my privilege to gaze. Its puny Illusus would indeed immeasurably shrink beside your imperial Shannon. I do not know that the natural intellect of Ireland would dwindle before that of any other race. Bearing a component part in the destinies of a wider empire, under the light of a purer faith, I do not see what limits need be opposed against your advance to any conceivable eminence in knowledge, glory, and virtue."

A selection from Mendelssohn's "Hymn of Praise" was then given by the chorus and orchestra, under the direction of Mr. Handel Rogers, on the conclusion of which his Excellency said,—“I have now the pleasure, in virtue of the high office I hold in this country, to declare the Limerick Athenæum duly opened; and I call upon all present of both sexes to join me in giving three hearty cheers.” The orchestra then performed a march, composed for the occasion; followed by the grand chorus from the "Creation,"—"The Heavens are telling;" after which the following address from the Committee of the School of Art was read by the Earl of Dunraven. "The Committee of the Limerick School of Art most respectfully offer their cordial congratulations to your Excellency on visiting this city, and gladly embrace this auspicious opportunity to submit the present state of the Institution to a statesman so eminently distinguished as the patron of science, literature, and art. Since the opening of the School, in 1852, the greatest anxiety has been evinced by the students of all classes to avail themselves of the advantages of art education, and the records of attendance show that their numbers, with reference to the population, has been throughout fully

equal to that of any school under the department, and the classification tables exhibit the gratifying fact that a large proportion of these students is drawn from the humbler classes. The Committee refer with satisfaction to the students' works, some of which are now in the School, and to the large number of medals awarded to Limerick at the several prize competitions in London, as a proof that a liberal encouragement of the fine arts by her Majesty's Government will not be thrown away upon Irishmen. The Committee have, however, to express their regret that in consequence of their inability to carry out the new regulations of the Department of Science and Art, they were compelled, in common with other schools, to suspend operations during the greater part of last session, as fully detailed in the report they beg to lay before your Excellency. This interruption was found to be so detrimental to the progress of the students, that the Committee were induced, at their urgent request, to re-open the School at the commencement of the present session, with a determination of giving a fair trial to the self-supporting system, which they feel has already impaired the efficiency and imperilled its future existence, and the Committee are convinced that the Institution cannot be permanently sustained unless aided by the Government or by local taxation. During the first session public approval was evinced by liberal contributions for its support, which was, however, discontinued from a conviction on the part of the public that Institutions should be maintained independent of voluntary aid. The Committee beg to call your Excellency's attention to the Public Libraries Act of last Session, which, though intended by the legislature to enable communities to support Libraries, Museums, and Schools of Art by local taxation, is as yet defective, inasmuch as it does not give the ratepayers the power of limiting the operations of the Act to any of those useful objects singly, which in this highly-taxed city would much facilitate its adoption for the support of this School. In conclusion, your Excellency may be assured that there is no educational institution more appreciated by all classes, or in whose welfare they take a more lively interest, and the Committee would earnestly request your Excellency's powerful assistance towards replacing the School upon its original footing with respect to Government support, at least until some equally efficient mode be devised for establishing it on a permanent basis, and enabling the Committee to promote a branch of education which cannot fail to develop the native genius of the people, while elevating their moral character and advancing them in the scale of social progress by the direction of their talent to a noble pursuit. Signed on behalf of the Committee, DUNRAVEN, President."

His Excellency's reply was as follows:—"My Lord and Gentlemen,—I am happy to express my acknowledgments to the Committee of the School of Art for the address with which they have been pleased to honour me. It gives me much pleasure that the friends of the artistic education of the people have found amongst the industrious classes of Limerick a disposition to enjoy, and an aptitude to profit, by the harmonising and elevating influences which have been found attendant in the enlightened cultivation of Art. The beautiful manufacture of lace for which this district has long been celebrated, is a striking evidence of this capacity. I regret that any circumstances should have occurred to interfere with the full success of your operations. I shall be happy to convey to the proper departments of the Government any representations I may receive on these matters, but you will not be disposed to forget that whatever part governments may legitimately take in fostering talent or genius, they are powerless to create them—the bounty of God must give them, and your own patience and perseverance can alone adequately improve the sacred gift."

The grand Hallelujah chorus brought the proceedings to a close.

MEETINGS FOR THE ENSUING WEEK.

TUES. Zoological, 9.
SAT. Royal Botanic, 3½.

PARLIAMENTARY REPORTS.

SESSIONAL PRINTED PAPERS.

Par. No.

- Delivered on 20th June, 1856.*
285. Imports and Exports (British Colonies)—Return.
Public Records—17th Report of the Deputy Keeper.
Prisons—19th Report of the Inspectors (Northern and Eastern District) Part 2.
Cholera—Epidemics of London (Impure Water)—Report.
Delivered on 21st and 23rd June, 1856.
294. Mercantile Law Amendment Bill—Lords' Report.
272. Writs of Error and Appeals from Courts of Common Law or Equity—Returns.
291. Education (Ireland)—Annual Report of the Commissioners.
292. Light Duties—Return.
184. Bills—Registration of Voters (Scotland) as amended by the Select Committee, and in Committee.
185. Bills—Church Building Commission.
186. Bills—Corrupt Practices Prevention.
188. Bills—Sardinian Loan.
189. Bills—Saint Sepulchre's Manor (Dublin) (as amended by the Select Committee).
190. Bills—Cambridge University (as amended in Committee, on Re-commitment, and on Consideration of Bill, as amended).
191. Bills—Lunatic Asylums (Ireland) (No. 2) (amended).
193. Bills—Intestates' Personal Estates.
194. Bills—Metropolis Local Management Act Amendment (No. 2).
Delivered on 24th June, 1856.
283. Poor Law (Gilbert's Unions)—Return.
289. Bibles, &c.—Return.
290. Fishery Board (Scotland)—Return.
297. Militia Estimates—Report from the Committee.
298. Causes (House of Lords)—Return.
187. Bills—Cousham Marriages Validity.
192. Bills—Dwellings for Labouring Classes (Ireland) as amended in Committee, and on consideration of Bill, as amended).
Delivered on 25th June, 1856.
223. (1) Civil Services, &c., Estimates—Class 8, Vote 9.
235. (1) Petty Sessions—Supplemental Return.
295. Exports—Return.
302. Sale of Lands (Ireland)—Return.
305. Nawab of Surat, &c.—Papers.
National Gallery Site—Papers.
Delivered on 26th June, 1856.
39. (5) Trade and Navigation Accounts (31st May, 1856).
303. Militia—Return.
304. Civil Service Estimates, Class 7—Report from the Committee.
195. Bills—Court of Exchequer (Scotland) (amended).
198. Bills—Registration of Leases (Scotland) (amended).
Poor Laws (Ireland)—9th Annual Report.
Delivered on 27th June, 1856.
301. Greenwich Hospital—Copies of Memorial, &c.
304. Civil Service Estimates, Class 7—Report and Evidence.
196. Bills—Joint Stock Companies' Winding-Up Acts Amendment (amended).
197. Bills—Queen's Colleges (Ireland).
199. Bills—Exchequer Bills (£4,000,000).
Central America—Further Correspondence.
Recruiting (United States)—Further Papers.
Delivered on 28th and 30th June, 1856.
238. Army (Names of Officers honourably mentioned by Lord Gough)—Return.
307. Cathedral and Collegiate Churches—Return.
312. Chapters—Return.
165. Housebreakings, &c. (Scotland)—Abstract of Return.
281. Military Bands on Sundays—Number of Memorials, &c.
308. Draftsmen of Parliamentary Bills—Return.
309. Poor Relief—Return.
200. Bills—Magdalen Hospital, Bath.
201. Bills—Endowed School at Moulton.
202. Bills—Drainage (Ireland) (amended).
203. Bills—Parochial Schools (Scotland) (amended).
204. Bills—Vills and Administrations (amended).
207. Bills—Oxford College Estates.
209. Bills—Court of Chancery (Ireland) (Receivers).
210. Bills—Court of Appeal in Chancery (Ireland).
211. Bills—Incumbered Estates (Ireland).
Public General Acts—Cap. 23, 24, 25, 26, 27, 28, 29, 30, 31, and 32.
Delivered on 1st July, 1856.
258. Lunacy—10th Report of the Commissioners.
206. Bills—Public Health Act Amendment (amended).
208. Bills—Distillation from Rice.
Sierra Leone (Moriah Chiefs)—Further Correspondence.
Turnpike Trusts (Ireland)—Report of the Commissioner.
British Fisheries—Report of the Commissioners.
Delivered on 2nd July, 1856.
317. Civil Service (East India)—Copy of Further Correspondence.
214. Bill—Turnpike Acts Continuance.

Delivered on 3rd July, 1856.

324. Coalwhipper's Office—Copy of Memorials.
215. Bills—Police (Counties and Boroughs) (as Amended by the Lords).
212. Bills—Church Building Commission (Amended).
213. Bills—Militia Ballots Suspension.
205. Bills—Hospitals (Dublin) (Amended).
Delivered on 4th July, 1856.
266. Fees on Private Bills, &c.—Return.
328. Minerals—Return.
329. Hyde-park—Return.
216. Bill—Commons Inclosure (No. 2).
Delivered on 5th and 7th July, 1856.
306. Mersey Conservancy—Copy of Report.
313. Income Tax—Return.
314. Horses and Carriages—Return.
315. Public Works (Ireland)—Account.
322. Metropolitan Police—Returns.
327. Civil List Pensions—Account.
324. Wines—Return.
336. Bedford Charity—Return.
116. Bills—Partnership Amendment (No. 2) (Amended).
222. Bills—Joint Stock Companies (Lords' Amendments).
Ottoman Empire—Convention.
Delivered on 8th July, 1856.
254 (1). Prisons—Supplemental Return.
318. New Westminster Bridge—Copy of a Report by Messrs. Rendell and Simpson.
220. Bill—Reformatory and Industrial Schools (as Amended by the Lords).
Wreck Chart of the British Isles.
Railways—Report of the Railway Department, Board of Trade.
Delivered on 9th July, 1856.
299. Caledonian Canal—51st Report of the Commissioners.
310. Highways—Return.
340. County Courts—Return.
221. Bills—Divorce and Matrimonial Causes.
223. Bills—Civil Service Superannuation (as amended by the Select Committee).
226. Bills—Criminal Justice.
Fisheries (Ireland)—Report of the Commissioners.
Prisons (Ireland)—34th Report of the Inspectors-General.

PATENT LAW AMENDMENT ACT.

APPLICATIONS FOR PATENTS AND PROTECTION ALLOWED.

[From Gazette July 11th, 1856.]

- Dated 28th May, 1856.*
1277. Oldham Whittaker and Cyrus Wallwork, Hurst, near Ash-ton-under-Lyne—Improvements in weaving figured fabrics.
Dated 4th June, 1856.
1324. Joseph Briggs, Fleet-street—Improvements in blocks and bricks for building.
Dated 9th June, 1856.
1368. John Henry Johnson, 47, Lincoln's-inn-fields—Improvements in the construction of rails for railways, and in the mode of securing the ends of rails for railways. (A communication.)
Dated 18th June, 1856.
1440. Caleb Perry Sharpley, Berry's-cottage, Chapel-street, Stock-well—Improvements in paddle-wheels for propelling vessels.
Dated 25th June, 1856.
1490. Henrich Ludwig Buß, 9, Fitzroy-square, and Frederic Versmann, 3, Forest-place, Kingsland-road—An improvement in purifying and softening water.
1492. Alexander Keiller, Dundee—Improvements in the manufacture of articles of confectionery.
1494. John Rohead, Glasgow—Improvements in hats and other coverings for the head.
1496. Theofilo Scheller, Waedenschweyl, Switzerland—Certain improvements in obtaining and applying motive power.
1498. James Platt and John Whitehead, Oldham—Improvements in machinery or apparatus for making bricks.
1500. Louis Cornides, 4, Trafalgar-square, Charing-cross—Improvements in ornamental metal, wood, leather, textile fabrics, and other substances.
Dated 26th June, 1856.
1501. Gustave Durrich, Stuttgart, Wurtemberg—Improvements in gas burners. (A communication.)
1502. John Gratrix, Preston, and Alfred Knight, Birmingham—Improvements in apparatus for registering a permanent record of the speed of steam or other engines, which apparatus is also applicable to Watchmen's Registers, and other similar purposes.
1503. Henry Waller, Lickhill, Wilts—Improvements applicable to vessels used in the manufacture of cheese.
1505. David Macdonald, Glasgow—Improvements in printing textile fabrics and other surfaces.
1506. John Portus, Morpeth, New South Wales—Improvements in wheeled carriages.
1507. James Aikman, Paisley—Improvements in the treatment, cleansing, or finishing of textile fabrics.
1508. François Joseph Lucien Malezieux, Paris—Certain improvements in the preparation of peat, and in the manufacture of the same into fuel, charcoal, and gas. (A communication.)
1509. Joseph James Foot, Spital-square—Improvements in weaving narrow fabrics. (A communication.)

1510. Basilio Scariano and Raphael Paul de Villamil, 10, Rue Lepelletier, Paris—Improvements in apparatus for measuring and setting out the forms of garments.

1511. William Hudson, Burnley, and Christopher Catlow, Clithero—Certain improvements in looms for weaving.

Dated 27th June, 1856.

1513. Andrew Shanks, 6, Robert-street, Adelphi—Certain improvements in machines for drilling, boring, and cutting metals.

1514. Charles Augustus Preller, Lant-street, Southwark—Improvements in unhairing and preparing skins, and in tanning. (Partly a communication.)

1515. John Henry Johnson, 47, Lincoln's-inn-fields—Improvements in the production of carbonate of barytes. (A communication.)

1516. Donald Bethune, Cambridge-terrace, Hyde-park—Certain improvements in apparatus for separating the more fluid particles from the more solid of various bodies.

1517. Edward Burnand, Moudon, Canton de Vaud, Switzerland—An improvement in the manufacture of fire-arms.

Dated 28th June, 1856.

1518. George Henry Ormerod, Newchurch, Whalley, Lancashire—Improvements in machinery for brushing and cleaning cotton fabrics.

1519. Edward Brown, Henry Street Works, Sheffield—Improvements in the casting of sailors' and other pocket-knife handles, and scales.

1520. George White, 5, Laurence Pountney-lane, Cannon-street, City—An improved poultice. (A communication.)

1521. Eugenio Vincenzi, Turin (Piedmont)—Improvements in Jacquard machines.

1522. Bevan George Sloper, Kentish-town—Improvements in freezing, refrigerating, and cooling, and in the machinery employed therein.

1523. Rev. Robert Reid, Glasgow—Improvements in the treatment or preparation of oils to be used for lubricating.

1524. Edwin Travis, Oldham, and Joseph Louis Casartell, Manchester—Certain improvements in machinery or apparatus for testing or ascertaining the lubricating quality of oils or other unctuous substances.

1525. William McAdam, Glasgow—Improvements in the manufacture of articles of clay and such like plastic substances. (Partly a communication.)

1526. Charles Armand Messager-Abit, 39, Rue de l'Echiquier, Paris—Certain improvements in the treatment of fibrous substances.

1527. Auguste Edouard Loradoux Bellford, 10, Bedford-street, Strand—Improvements in drying, burning, and cooling bricks, tiles, and other ceramic substances. (A communication.)

1528. Richard Orrell, John Cleminson, and William Barraclough, Low Moor, Bradford—Improvements in steam boilers for preventing explosion thereof.

1529. Thomas Frederick Henley, Bromley, Middlesex—An improved process for obtaining arrack or spirit from rice or other grain.

Dated 30th June, 1856.

1530. Samuel Jabez Goode, Aston—Improvements in gas stoves, and the application of the same to the ventilation of buildings.

1531. Ebenezer Rogers, Abercarn, and Herbert Mackworth, Clifton—Improvements in cooking, and in apparatus for that purpose. (Partly a communication.)

1532. Alfred Vincent Newton, 66, Chancery-lane—An improved safety pocket for coats and other garments. (A communication.)

1533. Henry Brown, 33, Nelson-square, Nelson-street, Bermondsey, and Job Bartlett, 23, Little Guildford-street, Southwark—The construction of an iron easy arm-chair bedstead.

1534. Cornelius Moriarty, 22, Nelson-street, Greenwich—Improvements in the construction of tube brushes used in cleaning the tubes of marine, locomotive, and all kinds of multitubular boilers.

Dated 1st July, 1856.

1535. William Henry Ludford, Fredworth, Gloucestershire—Improvements in the manufacture of brooms and brushes.

1536. Charles Woide Goodhart, Woodlands—Improvements in bars or gratings for the security of buildings and other property.

1537. Frederick George Sanders, Poole—Improvements in the manufacture of ornamental floor and other tiles, bricks, slabs, and other similar articles.

1538. Alfred Wild, Windsor—Improvements in the manufacture of boots and shoes.

1539. John Coope Haddan, Cannon-row, Westminster—Improvements in the manufacture of projectiles, and in firing or discharging them from cannon.

1541. David Graham Hope and William Andrew Fairbairn, Manchester—Certain improvements in steam engines.

1543. George Harvey and Alexander Harvey, jun., Glasgow—Improvements in machinery or apparatus for boring and drilling.

1545. George Tomlinson Bousfield, Sussex-place, Loughborough-road, Surrey—Improvements in propelling and steering vessels when the force of water is used. (A communication.)

1547. John Hay, Hay's Mill, Leith, and James Hay, Edington Mills, Berwickshire—Improvements in the production of pearl barley.

Dated 2nd July, 1856.

1549. John Henry Johnson, 47, Lincoln's-inn-fields—Improvements in the manufacture of cast steel. (A communication.)

1551. Patrick Heyns, Poplar—Improvements in axles, boxes, and wheels for carriages.

1553. William Frederick Spittle, Birmingham—An improvement or improvements in braiding or plaiting machinery.

1555. William Humber, 9, Dowgate-hill—Improvements in the permanent way of railways.

1557. Thomas Emmanuel Marais, Ferrières la Verrerie (Orne) France—Improvements in railway signals.

1559. William Henry Hubbard, 18, Hemus-terrace, King's-road, Chelsea—Improvements in the manufacture of articles for lighting domestic and other fires.

1561. Alfred Vincent Newton, 66, Chancery-lane—Improvements in air engines. (A communication.)

INVENTIONS WITH COMPLETE SPECIFICATIONS FILED.

1512. Alfred Ford, 35, Wellington-square, King's-road, Chelsea—Preparing and dissolving in naphtha or oil of turpentine, vulcanized india rubber for the purpose of waterproofing, and for all or any of the other purposes for which the same not so prepared and dissolved is now applicable, and especially for the coating of iron ships' bottoms.—27th June, 1856.

1571. Thomas Key, 122, Brick-lane, Bethnal-green—An improved knife-cleaning machine.—4th July, 1856.

1587. Alfred Louis Stanislas Chenot and Eugene Charles Adrien Chenot, Clichy-la-Garenne, Paris—A method of extracting eliminating extraneous substances from steel sponges.—7th July, 1856.

1588. Alfred Louis Stanislas Chenot and Eugene Charles Adrien Chenot, Clichy-la-Garenne, Paris—Improvements in sorting ores or separating metals from each other, and from certain combinations with other substances.—7th July, 1856.

1589. Alfred Louis Stanislas Chenot and Eugene Charles Adrien Chenot, Clichy-la-Garenne, Paris—Improvements in machinery for compressing metallic sponges and other substances.—7th July, 1856.

1590. Alfred Louis Stanislas Chenot and Eugene Charles Adrien Chenot, Clichy-la-Garenne, Paris—Improvements in apparatus for the reduction of metallic oxyds.—7th July, 1856.

WEEKLY LIST OF PATENTS SEALED.

Sealed July 11th, 1856.

89. Alexander Bain.
97. William Collett Homersham.

102. Austen Chambers and William Harrison Champion.
103. John Gottlieb Ulrich.

104. Anne Emilie Malteste.
107. Pierre Théophile Auguste Nicoulland.

112. Henry McEvoy.
133. Guisepppe Antonio Tremeschini.

236. Daniel Foxwell.
623. Louis Joseph Richard.
761. Charles Baptiste.

1078. Louis Frédéric Mayer.
1136. Jerome André Drieu.

Sealed July 15th, 1856.

113. Henry Law.
118. Johnson Thompson.
127. James Jackson.

132. Wm. Westbrooke Squires.

151. Isaac Barnes.
159. James Pockson.
176. Alexandre Tolhausen.

181. John Hopkinson.
183. Isaac Barnes.
196. Alexandre Tolhausen.

204. Alexander Dalgaty.
250. Charles Frederick Claus.
279. Andrew Lamb and John Ronalds.

345. John Wallace Duncan.
478. Robert and William Hawthorn.

514. Charles Alexandre de Fontbonne.
642. Thomas Bird and Thomas Rose.

1032. Stephen Carey.
1046. Samuel Rooke.
1162. William Henderson.

PATENTS ON WHICH THE THIRD YEAR'S STAMP DUTY HAS BEEN PAID.

July 7th.

1669. William Needham and James Kite.

July 8th.

1634. James Parkes and Samuel Hickling Parkes.

1635. Thomas Restell.
1652. Joseph Bacon Finnemore.

1673. Richard Archibald Brooman.

July 9th.

1656. Andrew Burns.

1703. Samuel Colt.

1774. Griffith Jarrett.

July 10th.

1650. George Dalton.
1663. Thomas Hill Bakewell.

1666. Frederick Ransome.
1689. Henry Bessemer.

1692. Isaac Taylor.

July 11th.

1651. Felix Lieven Bauwens.
1653. William Levesley.

WEEKLY LIST OF DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

No. in the Register.	Date of Registration.	Title.	Proprietors' Name.	Address.
3855	July 3.	Sash Fastening.....	Simcox, Pemberton, and Sons.	Birmingham.
3856	„ 9.	Indian Tent Lamp and Packing Case ...	Tucker and Son	190, Strand.